

NON-PUBLIC?: N
ACCESSION #: 9112260288
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Beaver Valley Power Station Unit 1 PAGE: 1 OF 03

DOCKET NUMBER: 05000334

TITLE: Reactor Trip Due To Electro-Hydraulic Control System Malfunction
EVENT DATE: 07/27/91 LER #: 91-023-01 REPORT DATE: 12/18/91

OTHER FACILITIES INVOLVED: N/A DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 030

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: T. P. Noonan, General Manager TELEPHONE: (412) 643-1258
Nuclear Operations

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JJ COMPONENT: ECBD MANUFACTURER: XXXX
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On 7/26/91 at 1930 hours in operating Mode 1 at 30 percent power, the unit began to experience turbine governor control oscillations from the turbine Electro-Hydraulic Control (EHC) system. Between 1930 hours 7/26/91 and 0655 hours 7/27/91, three load rejections of between 100 and 150 MWe were experienced. Operators stabilized the plant after each load rejection. EHC troubleshooting by plant personnel and contractor technicians began after the first occurrence. After the third occurrence, station management decided to remove the turbine from service in accordance with the Abnormal Operating Procedure for a load rejection. During preparations for shutdown, a fourth load rejection, accompanied by erratic turbine governor valve control, occurred. The reactor tripped at 0713 hours, due to a low level coincident with a low feedwater flow in the "B" steam generator. Control room personnel stabilized the plant in Operating Mode 3. The spurious governor valve signals were due to a

faulty circuit card in the EHC system. There were no safety implications to the public as a result of this event. All shutdown and control rods inserted, and all plant systems responded as designed.

END OF ABSTRACT

TEXT PAGE 2 OF 3

DESCRIPTION OF EVENT

On 7/26/91 at 1930 hours while in Operating Mode 1 at 30 percent power, the Unit began to experience turbine governor control oscillations from the turbine Electro-Hydraulic Control (EHC) system. The governor valve control signal fluctuated, resulting in a 100 MWe load rejection. The governor valve position limiter was reduced by the operators and the plant was stabilized. Contractor EHC technicians were contacted to assist in troubleshooting. On 7/27/91 at 0315 hours the Speed Error "A" card in the EHC cabinet was replaced.

At 0511 hours on 7/27/91, a second 150 MWe load rejection occurred when the governor valve control signal failed to zero and then returned to its original output approximately forty-five seconds later. A technician from the EHC contractor had opened the door in the EHC cabinet during this time and reclosed the cabinet door just as the load rejection was announced throughout the station. Control room personnel stabilized the plant by following Abnormal Operating Procedure (AOP) 1.35.2, "Load Rejection/Loss of Electrical Load."

A third load rejection of 150 MWe occurred at 0655 hours. Operators stabilized the plant and station management decided to remove the turbine from service in accordance with AOP for a load rejection. While preparing to shutdown the Unit, a fourth load rejection coupled with erratic turbine governor valve control, was experienced. The reactor tripped at 0713 hours, due to a low level coincident with a low feedwater flow in the "B" steam generator. Control room personnel entered Emergency operating Procedure E-0, "Reactor Trip and Safety injection" and transitioned to procedure ES-0.1, "Reactor Trip Response" after verifying that a Safety Injection signal was not required. The plant was stabilized in Hot Standby (Operating Mode 3).

CAUSE OF THE EVENT

A contractor specializing in EH control systems was contacted to assist troubleshooting the EHC system. The technicians concluded that the governor valve closures were the result of losing the governor valve common signal GV*AZ1 on mixing amplifier 2PO2F. This amplifier is the

final driver to all four governor valves. The card was found to be faulty. The technician replaced the card and verified proper output. Additional wire connections and contacts were checked and tightened. After a confidence run, the reactor was taken critical on 7/27/91 at 2130 hours.

TEXT PAGE 3 OF 3

CORRECTIVE ACTIONS

The following corrective actions have been or will be taken as a result of this event:

1. Operations personnel, utilizing the Emergency Operating procedures, stabilized the plant in Hot Standby.
2. An inspection and electrical check of the EHC system by station and personnel was performed.
3. The EHC preventive maintenance program will be formalized from the series of Maintenance Work Requests currently being used. The scope of the program will be reviewed and enhancements considered where appropriate.

SAFETY IMPLICATIONS

There were no safety implications to the public as a result of this event. The plant systems responded as designed (all shutdown and control rods fully inserted, turbine trip, auxiliary feedwater actuation on low-low steam generator level following steam generator level shrink resulting from the loss of secondary load).

REPORTABILITY

This event was reported to the Nuclear Regulatory Commission at 0745 hours on 7/27/91 in accordance with the requirements of 10CFR50.72.b.2.ii, Reactor Protection System actuation. This written report is being submitted in accordance with 10CFR50.72.iv, as an event involving a Reactor Protection actuation.

PREVIOUS OCCURRENCES

There has been one previously reported reactor trip which was the result of EHC system failures, LER 87-002-00 "Reactor Trip/Turbine Trip Due to Electro-Hydraulic Control Malfunction." In this event, a failure of the Overspeed Protection Controller resulted in a turbine runback when the

overspeed setpoint drifted low.

ATTACHMENT 1 TO 9112260288 PAGE 1 OF 3

Duquesne Light Telephone (412) 393-6000
Nuclear Group
P.O. Box 4
Shippingport, PA 15077-0004

December 18, 1991
ND3MNO:3229

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
LER 91-023-01

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

In accordance with Appendix A, Beaver Valley Technical
Specifications, the following revised Licensee Event Report is submitted:

LER 91-023-01, 10 CFR 50.73.a.2.iv. "Reactor Trip Due to
Electro-Hydraulic Control System Malfunction".

Very truly yours,

T. P. Noonan
General Manager
Nuclear Operations

JGT/sl

Attachment

ATTACHMENT 1 TO 9112260288 PAGE 2 OF 3

December 18, 1991
ND3MNO:3229
Page two

cc: Mr. T. T. Martin, Regional Administrator
United States Nuclear Regulatory Commission

Region 1
475 Allendale Road
King of Prussia, PA 19406

C. A. Roteck, Ohio Edison
76 S. Main Street
Akron, OH 44308

Mr. A. DeAgazio, BVPS Licensing Project Manager
United States Nuclear Regulatory Commission
Washington, DC 20555

J. Beall, Nuclear Regulatory Commission,
BVPS Senior Resident Inspector

Larry Beck
Centerior Energy
6200 Oak Tree Blvd.
Independence, Ohio 44101-4661

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

G. E. Muckle,
Factory Mutual Engineering
680 Anderson Drive #BLD10
Pittsburgh, PA 15220-2773

Mr. Richard Janati
Department of Environmental Resources
P.O. Box 2063
16th Floor, Fulton Building
Harrisburg, PA 17120

Director, Safety Evaluation & Control
Virginia Electric & Power Co.
P.O. Box 26666
One James River Plaza
Richmond, VA 23261

W. Hartley
Virginia Power Company
5000 Dominion Blvd.
2SW Glenn Allen, VA 23060

J. M. Riddle
NUS Operating Service Corporation
Park West II
Cliff Mine Road
Pittsburgh, PA 15275

ATTACHMENT 1 TO 9112260288 PAGE 3 OF 3

December 18, 1991
ND3MNO:3229
Page three

Bill Wegner, Consultant
23 Woodlawn Terrace

Fredricksburg, VA 22404

*** END OF DOCUMENT ***
